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CORRELATION BETWEEN REFRACTIVE ERROR, AXIAL LENGTH, CORNEAL CURVATURE AND AL/CR RATIO AMONG FIRST YEAR UNDERGRADUATE STUDENT IN UITM PUNCAK ALAM, SELANGOR

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AUTHOR'S DECLARATION

I declare that the work in this dissertation was carried out in accordance with the regulation of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated and acknowledge as referenced work. This topic has not been submitted to any academic institution or non-academic institution for any degree or qualification. In the event that my dissertation be found to violate the condition mentioned above, I voluntarily waive the right of conferring of my degree and agree be subjected to the disciplinary rules and regulation of Universiti Teknologi MARA.

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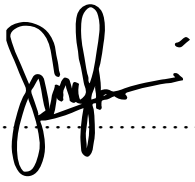
Candidate : 

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ABSTRACT

Purpose: This study was designed to study the correlation between refractive error, axial length, corneal curvature, AL/CR ratio and lens power among first year undergraduate students in UiTM Puncak Alam, Selangor. ***Methods:*** In this cross sectional study, 203 of first year undergraduate students in UiTM Puncak Alam, Selangor of mean age 20.78±0.93 years old volunteed themselves to participate as subjects. They underwent 3 procedures which were subjective refraction without cycloplegia by using Logmar chart, corneal radius (CR) of curvature by using NIDEK Corneal Topography and axial length (AL) by using TOMEY Biometer AL-100. The subjects were characterized according to these 3 variables to establish correlation between them. After determining the value of CR and AL, the ratio were calculated by dividing axial length with corneal radius to use in the analysis. Individuals with a history of ocular trauma, ocular surgery and take medication for systemic or ocular disease were excluded. ***Result:*** Out of 400 targeted subjects, 200 were included in the analysis. 71.5% of the subject were myopia (<-0.50D), 22.5% were emmetropia (>-0.50D - < +0.50 D) and 6% were hyperopia (<+0.50D). The correlation coefficient between spherical equivalent SE and CR, and AL/CR ratio were 0.187, and 0.829, respectively. The correlation between AL and CR was 0.253. The correlation between lens power and AL/CR ratio was 0.185. The r^2 value of 0.687 suggests that 68.7% of the variance in refractive error can be accounted for the variation in AL/CR ratio. Mean AL/CR ratio was 3.12±0.18. ***Conclusion:*** The correlation between SE and AL/CR ratio was significantly stronger as compared to with AL and CR alone.

Keywords : AL/CR ratio, axial length, corneal radius, refractive error.

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